FOREST PEST CONDITIONS IN CALIFORNIA-1982

A PUBLICATION OF
THE CALIFORNIA FOREST PEST CONTROL ACTION COUNCIL

THE CALIFORNIA FOREST PEST CONTROL ACTION COUNCIL was founded in 1951. Its membership is open to public and private forest managers, foresters, silviculturists, entomologists, pathologists, zoologists, and others interested in the protection of forests from damage caused by insects, diseases, animals, and weeds. Its objective is to establish, maintain, and improve communication among individuals -- managers, administrators, and researchers -- who are concerned with these problems. This objective is accomplished by four actions:

1. Coordination of detection, reporting, and compilation of pest damage information.

2. Evaluation of pest conditions.

3. Pest management recommendations made to forest managing agencies and forest owners.

4. Review of policy, legal, and research aspects of forest pest control, and submission of recommendations thereon to appropriate authorities.

The State Board of Forestry recognizes the Council as an advisory body in forest pest protection. The Council is a participating member in the Western Forest Pest Committee of the Western Forestry and Conservation Association.

(Note: Pest control advisors who attended the October 20, 1982 Council meeting are entitled to 9-1/4 hours continuing education credit from the California Department of Food and Agriculture.)

This report, FOREST PEST CONDITIONS IN CALIFORNIA - 1982, is compiled for public and private forest land managers to keep them informed of pest conditions on forested land in California, and as an historical record of pest trends and occurrences. The report is based largely on information provided by the Statewide Cooperative Forest Pest Detection Survey; in 1982, 198 reports were received: 77 for insect pests, 74 for diseases, and 47 for animal pests; and from information generated by the Forest Pest Management Staff, Pacific Southwest Region, Forest Service, while making formal detection surveys and biological evaluations.

The report was prepared by the Forest Service in cooperation with other member organizations of the Council. It was duplicated and distributed by the California Department of Forestry.

COVER PHOTO: An adult of the western spruce budworm, Choristoneura carnana californica, collected in June 1982 at Claire Engle (Trinity) Lake in Trinity County. The forewings of the moth are mottled rust-orange in color, and the wingspread is one inch.

Sacramento January 1983

HIGHLIGHTS OF PEST CONDITIONS - 1982

STATUS OF INSECTS. Statewide, defoliators were the most noteworthy insect pests. The prospect of the gypsy moth becoming a permanent resident of California seemed increasingly likely -- over 100 detections of various life stages were reported from 14 Counties; most were concentrated in the San Francisco Bay Area. A California form of the western spruce budworm caused defoliation of Douglas-fir over some 32,000 acres near Trinity Lake in northeastern California.

Of the principal bark and cambium feeding beetles common in California forests, flatheaded wood borers, pine engraver beetles, Jeffrey pine beetles, and fir engravers were principally associated with damage. The Nantucket pine tip moth was found in Monterey pine nursery stock and in a Christmas tree plantation near Fresno, some 250 air miles north of the quarantine area in Orange, Riverside, and San Diego Counties.

STATUS OF DISEASES. Root diseases and dwarf mistletoes were again the most important disease problems of timber and recreation forests in California. Although annosus root disease received the most attention from land managers, reports of new centers of black stain root disease in Douglas-fir continued to accumulate. A new black stain center in ponderosa pine was reported from Shasta County.

White pine blister rust was found in several new infection centers in Madera and Fresno Counties, continuing the gradual spread and intensification of the disease on sugar pine in the southern Sierra Nevada. Despite some local outbreaks of foliage diseases on sycamore and California laurel, reports of needle diseases on conifers were infrequent.

A tip blight and canker disease associated with a Phoma sp. caused the total loss of 1-0 true firs at the Forest Service nursery in Humboldt County. Other nursery diseases reported from thoughout the State included Fusarium oxysporum on sugar pine, true firs, and Douglas-fir, and Phomopsis lokoyae on western hemlock and Douglas-fir. Cedar leaf blight was found for the first time in California on 3-0 western red cedar in Humboldt County.

STATUS OF ANIMAL PESTS. Deer browsing in conifer plantations was widespread except in southern California. Damage from pocket gophers was common from Modoc to San Diego County. Porcupine damage was reported in the northern inland forests and in the northern and central Sierra Nevada. Rabbits damaged conifer plantations in most timber areas.

STATUS AND CONTROL OF INSECTS

PINE ENGRAVER BEETLES, Ips spp. Below-normal precipitation in southern California from mid-1980 through late 1981 led to increased mortality in all pine species. Pine engraver beetles were associated with dead Jeffrey, Coulter, and knobcone x Monterey pines in San Diego, Riverside, and Orange Counties. A rising trend of pine engraver beetle damage in northern California was reported in 1981, and continued into 1982. The beetles were active in ponderosa pine in the Rubicon River Canyon, Placer and El Dorado Counties, and on BLM-administered land between Etna and Callahan, Siskiyou County. They were also reported from lodgepole pine around Little Grass Valley Reservoir, Plumas County.

JEFFREY PINE BEETLE, Dendroctonus jeffreyi. Severe damage by the Jeffrey pine beetle continued for the fourth year in northeastern California, and also increased in the southern Sierra Nevada and in southern California. Concentrated tree killing was evident north and east of Truckee in Sierra and Nevada Counties. Localized group kills occurred at Mineral King in Sequoia and Kings Canyon National Parks, Tulare County, and at Alpine Forest Park, Kern County. The mortality at Mineral King was associated with dense stocking, while that at Alpine Forest Park involved western dwarf mistletoe.

Every year since 1978, high levels of tree mortality have occurred in the Jeffrey pine recreation forests around Camp Richardson near South Lake Tahoe, El Dorado County. Jeffrey pine beetle activity was closely associated with various combinations of annosus root disease, dwarf mistletoe, Elytroderma needle disease, overstocking, recent site disturbance, tree injury, and erratic soil moisture relationships over the past several years. On National Forest lands, where a continuation of tree mortality would interfere with management objectives, corrective measures to include stocking control, beetle brood destruction, disease control, and prophylactic spraying were being considered.

WESTERN PINE BEETLE, Dendroctonus brevicomis. Damage caused by the western pine beetle in northern California was generally light. An overstocked young-growth stand of ponderosa pine about one mile southeast of Mountain Home State Forest, Tulare County, had heavy losses. Many drought-stressed Coulter pines were killed by the western pine beetle in the San Bernardino Mountains, San Bernardino County.

MOUNTAIN PINE BEETLE, Dendroctonus ponderosae. The mountain pine beetle killed scattered groups of three-to-four ponderosa pines on the Fort Bidwell Indian Reservation, Modoc County. Although the stands were generally open in this area, the mortality occurred in clumps of trees where the stocking was too heavy for the site. The mountain pine beetle was also implicated in the deaths of lodgepole pines at two sites at

Lake Tahoe: Meeks Bay, El Dorado County, and Wm. Kent Campground, Placer County. Elsewhere in California, damage associated with mountain pine beetle activity was generally light.

FIR ENGRAVER, Scolytus ventralis. The fir engraver, in combination with annosus root disease, was responsible for white fir mortality in proposed timber sale areas near Lumpkin Ridge, Plumas County; Pony Peak, Siskiyou County; and south of Union Valley Reservoir, El Dorado County. Both red and white fir mortality occurred in a proposed timber sale on South Fork Mountain, Trinity County, due to a combination of the fir engraver, roundheaded fir borer, dwarf mistletoes, and cytospora canker. White fir mortality and top-kill due to the fir engraver were present in recreation areas around Little Grass Valley Reservoir, Plumas County. Widespread white fir mortality due to a combination of drought, true mistletoe, and the fir engraver occurred in the San Bernardino Mountains, San Bernardino County; the San Jacinto Mountains, Riverside County; and on Palomar Mountain, San Diego County.

RED TURPENTINE BEETLE, Dendroctonus valens. Turpentine beetle activity was common in drought-stressed pines in San Bernardino, Riverside, and San Diego Counties, although their impact was probably low compared to the other insects and diseases present in the dead and dying trees. In northern California, red turpentine beetle damage was slight.

FLATHEADED WOOD BORERS, primarily Melanophila californica and M. drummondi. Damage associated with flatheaded borer activity was widespread in California in 1982. The California flatheaded borer was associated with Jeffrey and Coulter pine mortality at Alvin Meadow, Baldy Mountain, Garner Valley and Lake Hemet, Riverside County; Laguna Mountain, San Diego County; and Crab Flats and Coldbrook Campgrounds, San Bernardino County. Very noticeable Douglas-fir mortality associated with the fir flatheaded borer, M. drummondi, occurred in the Hog Burn and along the Scott River drainage, Siskiyou County; Klamath River drainage, Siskiyou and Humboldt Counties; and Trinity River drainage, Trinity and Humboldt Counties. Precipitation from October through April was below normal in these areas during four of the past seven water years, and is suspected of contributing to the mortality. Dead Douglas-firs harboring the fir flatheaded borer were common in the Sierra Nevada, and often associated with poor sites and black stain root disease.

WESTERN SPRUCE BUDWORM, Choristoneura carnana californica. The western spruce budworm defoliated Douglas-fir on four areas near Trinity Lake, Trinity County -- Trinity Mountain Station, 30,500 acres; Bowerman Ridge, 2,000 acres; Upper Brush Gulch, 360 acres; and Schultz Sheep Camp, 240 acres. This was only the second known report of defoliation by this insect and the first that involved such an extensive area. Heaviest defoliation occurred in parts of the Papoose and Van Ness watersheds, east and southeast of Bowerman Peak, and along Feeny Ridge.

Sapling and pole-size trees were more affected than the sawtimber class. White fir is also a host, but the species was a minor component of the stands involved.

GYPSY MOTH, Lymantria dispar. Over 100 detections of various stages of the gypsy moth were made in California during 1982. Finds were made in 14 counties, with the greatest concentration in the San Francisco Bay Area. Gypsy moth was detected for the first time in northern California when a male moth was trapped in a KOA campground northeast of Redding, Shasta County. The California Department of Food and Agriculture implemented a gypsy moth eradication effort around Santa Barbara in the spring of 1982. It included two ground applications of Carbaryl within a 1/4-mile radius of the locations of the egg mass and repeat adult finds at three locations, six aerial applications of Bacillus thuringiensis over a 15 square mile area, and mass trapping of an eight square mile area. No gypsy moths were subsequently trapped in Santa Barbara; however, intensive trapping will continue for two more years.

DOUGLAS-FIR TUSSOCK MOTH, Orgyia pseudotsugata. No reports of tussock moth defoliation were received in 1982, although a larval find was reported on Douglas-fir on the Mad River District, Six Rivers National Forest, Trinity County. Results from the larval survey conducted in June 1982, in areas that had increased adult moth catches in 1981 pheromone traps, indicated that larval populations surveyed were low. According to the survey techniques used, such densities are too low to reach outbreak levels in 1983. Pheromone trap monitoring of the 1982 moth flight on approximately 100 permanent plots on State, private and Federal lands in the Sierra Nevada and Cascade Ranges showed a decrease in the average catch per trap relative to 1981. About 80% of the plots averaged less than one moth per trap, and populations were expected to continue at non-damaging levels in 1983.

PANDORA MOTH, Coloradia pandora. Pandora moths were captured in a light trap in August and September near Happy Camp, Siskiyou County. Field surveillance reports from the Mammoth Lake area, Inyo County, indicated that the number of moths flying and the length of the flight period were reduced relative to the 1980 flight. No reports of flying adults, egg clusters, or larvae were received from any new areas outside the boundaries of the current infestation on the Inyo National Forest. Egg clusters and early instar larvae were found throughout the current infestation area around Mammoth Lake, but in fewer numbers than in 1980. A number of 1980-82 generation larval cadavers were observed still present on the foliage. The incidence of virus in the current population will be assessed through surveys of early, mid, and late larval stages.

LODGEPOLE NEEDLEMINER, Coleotechnites milleri. The infestation continued in the greater Tuolumne Meadows area of Yosemite National Park, Tuolumne County, with moderate to heavy defoliation. Population levels decreased in many of the areas that had been heavily defoliated. No new areas of defoliation were reported.

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FRUITTREE LEAFROLLER, Archips argyrospilus. Visible defoliation in the San Bernardino County infestation continued to decline. About 2000 acres of mostly light to moderate defoliation was evident in 1982 as opposed to approximately 5000 acres in 1981. The only heavy defoliation occurred in the Lake Gregory area, and in localized patches or individual trees near Forest Falls. Moderate areas of defoliation were reported from the Running Spring area.

JEFFREY PINE NEEDLEMINER, Coleotechnites sp. The area of Jeffrey pine needleminer damage in San Bernardino County remained similar to that in 1981 (about 2000-3000 acres), with no new areas reported infested. The heaviest damage was primarily to dense stands on private property.

CONE AND SEED INSECTS. Cone crops on pine and true fir were poor in 1982 and few collections were made. The Douglas-fir cone crop was excellent in quantity and the quality was unusually good. The size of the crop reduced the impacts of the Douglas-fir cone moth and coneworm to very low levels in almost all shipments of cones received at the Placerville Nursery. The Douglas-fir cone gall midge was infrequently seen in the cone collections examined.

PINE NEEDLE SHEATHMINER, Zelleria haimbachi. Defoliation of ponderosa pine continued on 110 acres of the Big and Little Humbug plantations, Klamath National Forest, Siskiyou County. Some terminal shoots were killed.

WESTERN SPRUCE BUDWORM. Some 33,000 acres of Douglas-fir were defoliated near Trinity Lake, Trinity County. Heaviest defoliation was evident in parts of the Papoose Creek watershed (left); a mature larva (right) is a heavily marked brick red in color.

TABLE I. INSECTS OF LIMITED IMPORTANCE IN CALIFORNIA FORESTS - 1982

PESTS		HOSTS	WHERE EXAMINED OR REPORTED	
Scientific Name	Common Name	Names	County	Remarks
-----	Leaf miner	BO	Tulare	
-----	Grasshoppers	PP,WF	Siskiyou	115 ac., 2-9 per sq. yd.
Acantholyda sp.	Web spinning sawfly	PP	Calaveras	Very scattered
Cecidomyia piniinopis	Gouty pitch midge	PP	Siskiyou	Plantations
Cinara sp.	Aphids	DF	Humboldt	Nursery
		DF	Mendocino	Isolated trees
Contarinia pseudotsugae	Needle gall maker	DF	Yuba	Saplings
Cylindrocopturus eatoni	Pine reproduction weevil	PP	Nevada	Heavy shrub competition
Dasineura sp.	-----	WF	Amador	Cone
Dioryctria sp.	-----	CP	Los Angeles	Saplings, bole attacks.
	-----	CP	San Luis Obispo	
	-----	PP	El Dorado	Seed orchard
	Coneworm	AP	Eldorado, Butte	Progeny test
Halisidota argentata	Silverspotted tiger moth	WF	San Bernardino	Residental forest area
		DF	Lake, Mendocino	Saplings
		JU	Glenn	

TABLE I (Cont.)

PESTS		HOSTS	WHERE EXAMINED OR REPORTED	
Scientific Name	Common Name	Names	County	Remarks
H. argentata (cont.)		IC	Tuolumne	
Hylaphora euryalus	Ceanothus silk moth	DF	Shasta	Nursery
Ips confusus	Pinyon pine engraver	PiP	Los Angeles	+ twig beetles
Laspeyresia spp.	Seed worm	JP	Baja California	Cones
Leucoma salicis	Satin moth	--	Lassen	Collected from side of building
Matsuccoccus fasciculensis	Needle fascicle scale	PP	Calaveras	Scattered on plantation saplings
Nuculaspis californica	Black pine-leaf scale	SP	El Dorado Nevada	Seed orchard Plantation
		SP	Shasta	Natural forest
Orgyia pseudotsugata	Douglas-fir tussock moth	DF	Trinity	1 larva found on bole
Phloeosinus antennatus	Cedar bark beetle	IC	Shasta	Scattered
Pityophthorus sp.	Twig beetles	JP	Alpine	
		PiP	Los Angeles	+ Pinyon Ips
Prociphilus americanus	-----	WF	Del Norte	Seedling Christmas trees
Rhyacionia sp.	Pine tip moth	PP	Nevada	Heavy shrub competition
Rhyacionia frustrana	Nantucket pine tip moth	MP	Fresno	Nursery stock, Christmas tree plantation

TABLE I (Cont.)

PESTS		HOSTS	WHERE EXAMINED OR REPORTED	
Scientific Name	Common Name	Names	County	Remarks
Rhyacionia zozana	Ponderosa pine tip moth	PP	Lassen	Scattered pines of various sizes
		PP	Mariposa	380 ac.
Scolytus tsugae	Hemlock engraver	DF	Lake	Saplings, scattered
Scolytus unispinosus	Douglas-fir engraver	DF	Lake	Scattered
Scythropus sp.	-----	PP	Lassen	Heavy feeding, plantation saplings
		SP	Plumas	Plantation
Trisetacus alborum	Mite	SP	Fresno	"Blue Broom"
Vespamima sequoiae	Sequoia pitch moth	PP	Calaveras	Ornamentals at fire center

HOST ABBREVIATIONS

AP = Afghanistan pine
BO = Black oak
CP = Coulter pine
DF = Douglas-fir
JU = Juniper
JP = Jeffrey pine
IC = Incense-cedar
MP = Monterey pine
PiP = Pinyon pine
PP = Ponderosa pine
RW = Redwood
SP = Sugar pine
WF = White fir

STATUS AND CONTROL OF DISEASES

ABIOTIC. Only four of the 74 disease detection reports submitted in 1982 involved abiotic or non-living agents. One of these was spring frost damage to seedling and sapling Douglas-fir and white fir in Trinity County. Two reports from Federal tree nurseries in Humboldt and Butte Counties involved suspected herbicide injury to ponderosa pine and Douglas-fir seedlings.

AIR POLLUTION (OZONE). Ozone was monitored at two locations in the central Sierra Nevada (Georgetown Ranger Station, El Dorado County, and California Department of Forestry Fire Station in Arnold, Calaveras County) and one location in the southern Sierra Nevada (Whitaker Forest, Tulare County).

In the southern Sierra, 27 air pollution survey plots were evaluated for ozone injury to ponderosa and Jeffrey pines. These plots were initially rated for injury in 1977. In the past five years ozone injury symptoms increased in 21 plots, decreased in 3 plots, and remained unchanged in 3 plots. Two trees in separate plots died since they were last examined in 1980; this marks the first time when air pollution may be implicated in tree mortality in the Sierra.

During the fall, the Forest Service also conducted an ozone injury survey on the Eldorado National Forest in Placer, El Dorado, and Amador Counties. Thirty 10-tree ponderosa or Jeffrey pine plots were established throughout the Forest and evaluated for symptom severity. Fifty percent of the plots had one or more trees with symptoms. No plots had worse than moderate injury, and the three plots rated moderate were all below 4000 feet elevation. These results appeared to confirm the general decline of ozone injury symptoms as one moves north from the southern into the central Sierra Nevada.

DWARF MISTLETOES, Arceuthobium spp. The incidence and impact of dwarf mistletoes did not change substantially during 1982. The dwarf mistletoes were major pests, infesting about 21% (approximately 2.2 million acres) of the commercial forest land in the State, and will continue as such until the acreage of managed second-growth stands increases. Dwarf mistletoe suppression projects were completed at Lobo-Oso and North Shore Campgrounds on the San Bernardino National Forest, San Bernardino County. These projects included thinning, tree removal, and pruning of infected branches.

FOLIAGE DISEASES. Generally, foliage diseases were at a low level of occurrence, although an increased incidence of specific diseases was noted in local areas. Because of the long wet spring, sycamore anthracnose (caused by Gnomonia platani) was common in 1982, but caused

little damage. Laurel leaf blight, caused by two fungi (a Colletotrichum sp. and a Kabatiella sp.) and a bacterium (a Pseudomonas sp.), was prevalent at Muir Woods National Monument, Marin County.

An increase in Elytroderma disease (caused by Elytroderma deformans) was observed in the southern Sierra Nevada on the Hume Lake Ranger District, Sequoia National Forest, Tulare County. Moderate levels of the white fir needle cast (Lirula abietis-concoloris) were noted in the mixed conifer type along parts of the Georgetown Divide, El Dorado County.

NURSERY DISEASES. A tip blight and canker disease associated with a Phoma sp. caused a total loss of 1-0 true firs at the Forest Service Humboldt Nursery in Humboldt County. A field evaluation of several systemic fungicides was begun in the fall. Phomopsis canker, caused by Phomopsis lokoyae, resulted in about 80% loss of the 1-0 western hemlock at the Humboldt Nursery, Humboldt County.

Fusarium root rot, caused by Fusarium oxysporum, was reported on 1-0 sugar pine at the Placerville Nursery, El Dorado County; on potted sugar pine at the Chico Tree Improvement Center, Butte County; on 1-0 red and white fir at the Humboldt Nursery, Humboldt County; and on 1-0 Douglas-fir at the Arcata Lumber Company Nursery, Humboldt County.

Relatively minor diseases reported, all at Humboldt Nursery, included Phomopsis lokoyae on 2-0 Douglas-fir; Botrytis cinerea on 1-0 true fir and 3-0 Douglas-fir; and cedar leaf blight, caused by Keithia thujina, on 3-0 western red cedar. Cedar leaf blight had not been reported previously in California.

Pythium spp. were consistently associated with necrotic roots of nursery stock that failed to survive outplanting at various locations.

ROOT DISEASES. Four root diseases were major concerns of land managers during 1982: annosus root disease caused by Fomes annosus, Armillaria root disease caused by Armillariella mellea, black stain root disease caused by Ceratocystis wageneri, and red-brown butt rot caused by Phaeolus (Polyporus) schweinitzii. Among these four, annosus root disease continued to receive the most attention in both timber and recreation stands.

Results of a State-wide evaluation of F. annosus in true fir indicated the magnitude of the disease problem (for more information on the State-wide survey, see Surveys and Evaluations, page 21). Annosus root disease was detected on over 500,000 acres of true fir type in northern and central California, infecting over six million live true firs (174 million cubic feet) greater than four inches dbh. The fungus was involved in the deaths of 500,000 true firs (3.8 million cubic feet), or 19% of all recently-killed true firs. A separate analysis of disease incidence in campgrounds revealed that annosus was present in 53% of the campgrounds with true fir, and in 35% of the campsites.

New reports of black stain root disease on Douglas-fir were received from seven Counties: Humboldt, Marin, Mendocino, Shasta, Siskiyou, Tehama, and Trinity. Black stain of singleleaf pinyon was again reported from Bureau of Land Management forests in Tulare County, and a new disease center was found in ponderosa pine on the Lassen National Forest, Shasta County.

WHITE PINE BLISTER RUST, Cronartium ribicola. Several new locations of white pine blister rust were reported on sugar pine: on the Covelo Ranger District, Mendocino National Forest, Mendocino County; from private land in Calaveras County; and on the Hume Lake and Greenhorn Ranger Districts, Sequoia National Forest, Tulare and Kern Counties.

During June the Forest Service conducted a white pine blister rust incidence and impact survey on the Sierra National Forest, Madera County. Five previously unreported blister rust centers were found: four in the vicinity of Soquel Meadow, Bass Lake Ranger District, and one at Laurel Creek, Kings River Ranger District. At Dinkey Creek, cankers were initiated every year from 1972 through 1979, and the rust spread and intensified rapidly in the past decade.

ELYTRODERMA DISEASE OF PINES. Elytroderma deformans is a fungus that infects needles, twigs, and branches of ponderosa and Jeffrey pines. It kills 1-year-old needles, and deforms infected twigs and branches, causing a compact, globose broom. The disease has little effect until two-fifths or more of a tree's branches are infected. Moderate to severe infection predisposes the hosts to other diseases and to insect attack. These dead Jeffrey pines (**right**) were infected during the 1971 outbreak at Baldwin Beach near South Lake Tahoe. They, like many nearby pines in this severely-infected stand, were weakened and later killed by bark beetles during the mid-1970's.

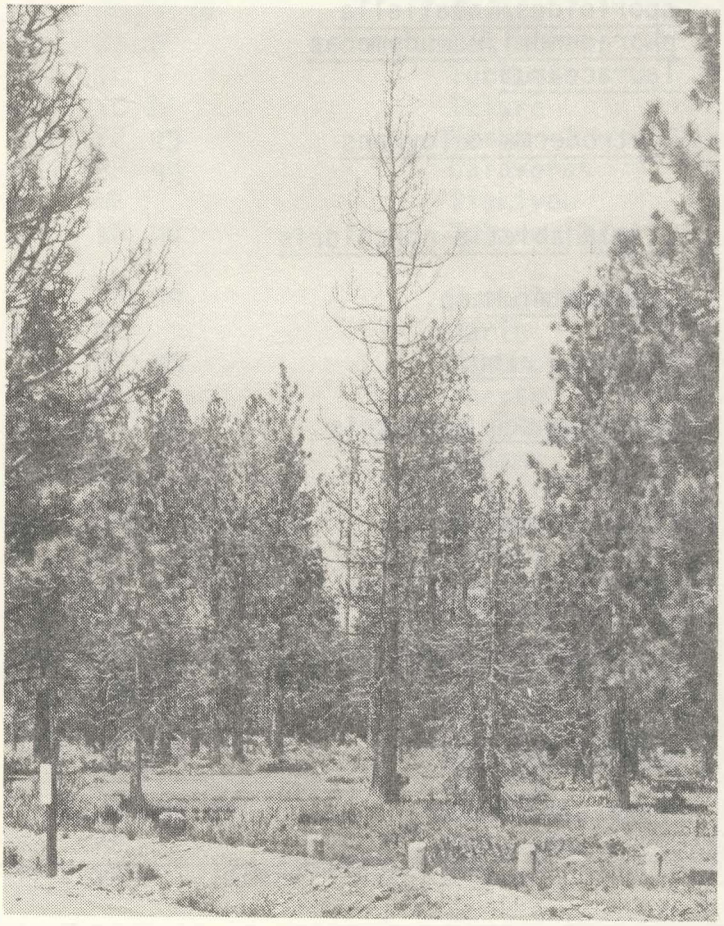

TABLE II. FOREST DISEASES REPORTED - 1982

AGENT	HOST	COUNTY
ABIOTIC DISEASES:		
Chemical	DF	Humboldt
	IC	Fresno
	PP	Butte
Weather	DF	Trinity (2)
	PP,WF	Trinity
DECAYS:		
Schizophyllum commune	SM	Plumas
FOLIAGE DISEASES:		
Colletotrichum gloeosporioides/Kabatiella phoradendri/Pseudomonas lauracearum	CL	Marin
Elytroderma deformans	CP	Tulare
	PP	Fresno
Lirula abietis-concoloris	WF	Butte
Lophodermium sp.	PP	Siskiyou
Rhytisma arbuti	PM	Siskiyou
Sphaerotheca lanestris	LO	Santa Barbara
NURSERY DISEASES:		
Botrytis cinerea	DF	Humboldt
Fusarium oxysporum	SP	El Dorado
	RF,WF	Humboldt
Keithia thujina	WRC	Humboldt
Phoma spp.	DF	Humboldt (2)

TABLE II (Cont.)

AGENT	HOST	COUNTY
Phomopsis lokoyae	DF	Humboldt (2)
	WH	Humboldt
PARASITIC SEED PLANTS:		
Arceuthobium spp.	CP,JP	Riverside
	CP,JP	San Diego
	JP	Amador
	JP	Tulare
	WF	Tulare
Cuscuta spp.	Br	Madera
	Br	Tuolumne
	Br,PP	Fresno (2)
ROOT DISEASES:		
Armillariella mellea	BO,DF,WF	Shasta
	DF,WF	Del Norte
	IC	Tuolumne
	IC,SP	Tulare
	PP	Kern
	RF	Calaveras
	WF	Siskiyou
	WF	Tulare (2)
Ceratocystis wageneri	DF	Humboldt (3)
	DF	Marin
	DF	Mendocino
	DF	Shasta
	DF	Siskiyou
	DF	Tehama
	DF	Trinity
	PiP	Tulare
	PP	Shasta
Fomes annosus	DF	Trinity
	IC	Tuolumne
	IC,SP	Tulare
	JP	Riverside
	JP	San Diego
	JP	Tulare
	JP,PiP,PP	Kern
	PP	Calaveras
	WF	Fresno

TABLE II (Cont.)

AGENT	HOST	COUNTY
F. annosus (cont.)	WF	El Dorado
	WF	Siskiyou (2)
	WF	Trinity
	WF	Tulare (3)
Phaeolus schweinitzii	JP	Fresno
RUST DISEASES:		
Cronartium ribicola	SP	Calaveras
	SP	Fresno
	SP	Kern
	SP	Madera (2)
	SP	Mendocino (4)
	SP	Tulare
STEM CANKERS:		
Seridium cardinale	MC	Marin
UNKNOWN DISEASES:	CP	Los Angeles
	DF	Humboldt
	GS	Riverside
	JP	San Bernardino
	JP	Tehama
	JP,RF	Calaveras
	JP,WF	Tulare
	PiP	Ventura
	PP,SRF	Siskiyou
	SP	Plumas

HOST ABBREVIATIONS

BO = Black Oak	PiP = Singleleaf pinyon pine
Br = Brush (misc.)	PM = Pacific madrone
CL = California laurel	PP = Ponderosa pine
CP = Coulter pine	RF = Red fir
DF = Douglas-fir	SM = Silver maple
GS = Giant sequoia	SP = Sugar pine
IC = Incense-cedar	SRF = Shasta red fir
JP = Jeffrey pine	WF = White fir
LO = Live oak	WH = Western hemlock
MC = Monterey cypress	WRC = Western red cedar

STATUS AND CONTROL OF ANIMAL PESTS

DEER. Deer browsing of pines, true firs, Douglas-fir, and redwood was widespread except in southern California. Damage occurred primarily in plantations up to five years old with some damage in plantations up to twenty years of age. Increased injury occurred at sites in the north coast region, the interior northern coast range, Shasta County, and Trinity County. Localized decreases occurred in the northern and southern Sierra Nevada. As in the past four years, the use of seedling protectors was the most common control measure.

POCKET GOPHER. Damage by pocket gophers was widespread from Modoc County to San Diego County. Gophers damaged pines, true firs, and Douglas-fir in one-to-fifteen year old plantations. Damage to 300-to-600 trees per acre occurred in the north coast region, Siskiyou County, and in the central and southern Sierra Nevada. Most reports of increased damage came from Siskiyou and Trinity Counties. There were localized increases and decreases of gopher injury throughout the Sierra Nevada. Baiting with Strychnine-treated oats, trapping, vegetation control with herbicides, and seedling protectors were used for control.

PORCUPINE. Porcupines damaged pines in plantations and natural stands in the northern inland forests and in the northern and central Sierra Nevada. There were localized increases in injury throughout this geographic range, with Modoc and Siskiyou Counties having the greatest number of acres affected. Most injury rates were less than 25 trees per acre, but a few were as high as 100-to-300 trees per acre. Strychnine-treated salt blocks, hunting, and trapping were used for control in the northern inland forests.

RABBITS. Rabbits damaged one-to-three-year-old plantations of Douglas-fir, true firs, and pines in most timber areas. The overall damage trend was static. Most of the increases in injury were in the northern interior forests, where 200-to-680 trees per acre were damaged at some sites. Seedling protectors, repellents, fencing, hunting, and slash burning were used for control.

OTHER ANIMALS. The animals listed in Table III (page 16) caused damage in the Counties or regions shown. Damage was severe in some areas, but it was generally not widespread.

TABLE III. MISCELLANEOUS ANIMAL PESTS - 1982

SPECIES	COUNTY OR REGION
Beaver	Del Norte, Humboldt, Shasta, Tehama, San Bernardino
Birds	Lake (white-headed woodpecker), Tulare, Kern
Black Bear	Del Norte, Humboldt
Domestic Stock	All major timber areas
Dusky-footed Woodrat	Del Norte, Humboldt, Mendocino, Siskiyou, Lake
Elk	Del Norte
Meadow Mouse	Siskiyou, Shasta, Trinity, Plumas, Lassen, El Dorado
Mountain Beaver	Del Norte, Humboldt
Small Seed-eating Mammals	Siskiyou, Shasta, Tulare, Kern
Tree Squirrels	North coast, interior northern coast, Sierra Nevada, San Bernardino, Riverside

KNOW YOUR FOREST PESTS_____*

WOOD RATS

Wood rats -- also known as packrats -- are about the size of the common house (Norway) rat. They are easily distinguished from Norway and black rats by their hairy, unscaled tails and soft, fine fur. Wood rats also have larger ears, and their feet and bellies are usually white or grayish.

One or more of four species of wood rat may be found throughout California. The dusky-footed wood rat (Neotoma fuscipes) is most common in forests and often damages conifers.

LIFE HISTORY. Wood rats are mostly nocturnal and have small home ranges of about one acre. They do not hibernate, but do store food for winter use. Primary foods are acorns, fruits, seeds, and green foliage. Wood rats have many predators, including owls, bobcats, coyotes, and weasels.

Preferred habitats for the dusky-footed wood rat include deciduous and mixed woods, streamside thickets, and stands with dense shrub components. Large, bulky nests or stick houses are the unmistakable evidence of their presence. These are commonly built on stumps or logs, in clumps of dense conifers, and sometimes in the crowns of trees. One individual may construct several nests. Nests are often used for long periods of time and by several generations.

The dusky-footed wood rat is thought to breed from March through September, with a peak in May and June. Normally, after a gestation period of about one month, one litter of two-to-four young is born per year. Young are completely dependent on the mother for several weeks after birth.

DAMAGE IDENTIFICATION. The dusky-footed wood rat occasionally strips bark from the upper bole and limbs of conifers in dense 10- to 30-year-old stands. The bark is apparently shredded to line nest chambers rather than eaten. Small lateral branches and the terminal leader may be clipped for use as food and nest construction material.

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*Since 1970, **Forest Pest Conditions in California** has highlighted a different forest disease each year. Topics have included annosus root disease, Elytroderma needle disease, black stain, salt damage, Cytospora canker, nursery diseases, white fir true mistletoe, Port-Orford-cedar root rot, and Dutch elm disease. This year, we are expanding our focus to include any of the major insect, disease, animal, or weed pests that threaten forest health and productivity in the State.

Damage to trees is often clumped and seldom widespread, although severe problems may occur when populations reach 10-to-20 adults per acre. Damage usually occurs within 150 feet of the nest. Stands grow beyond a susceptible size when about 30 years of age.

Barking damage by a wood rat leaves a relatively smooth surface with a few scattered toothmarks. Upper bole barking may be confused with similar-appearing injuries caused by porcupines and tree squirrels. Porcupine injuries have a more heavily-gnawed appearance, with wider and more definite toothmarks. Short strips of discarded bark commonly litter the ground under trees where squirrels have been working. This sign is lacking under trees barked by wood rats.

DAMAGE CONTROL. Wood rats are classified as non-game mammals and may be taken if they are causing damage as provided in the California Fish and Game Code. Common control alternatives include the following:

Trapping. Wood rats are easily taken with wooden-base rat traps or live-catch traps placed near nests or in active runways and baited with prunes, raisins, or nut meats.

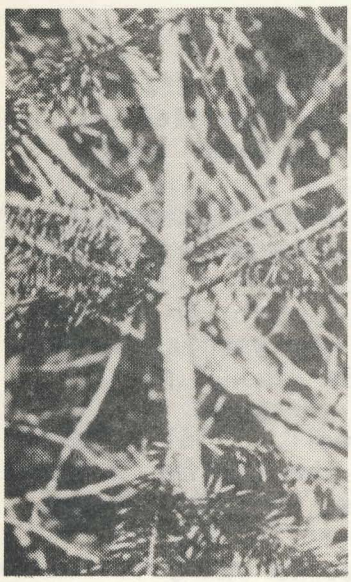
Toxic Baits. Anticoagulant and zinc phosphide baits are registered for wood rat control in some California Counties. Spot baiting, bait boxes, and paraffin-bait blocks are effective. In spot baiting, a small amount of bait is scattered over one square foot in a runway near a nest entrance. Bait should be placed late in the day to reduce exposure to birds and other small rodents. Placing bait boxes near active runways or paraffin blocks near nest entrances are preferred methods of application. Check with the local County Agricultural Commissioner regarding the use and availability of toxic baits.

Shooting. Usually ineffective except on a limited and temporary basis.

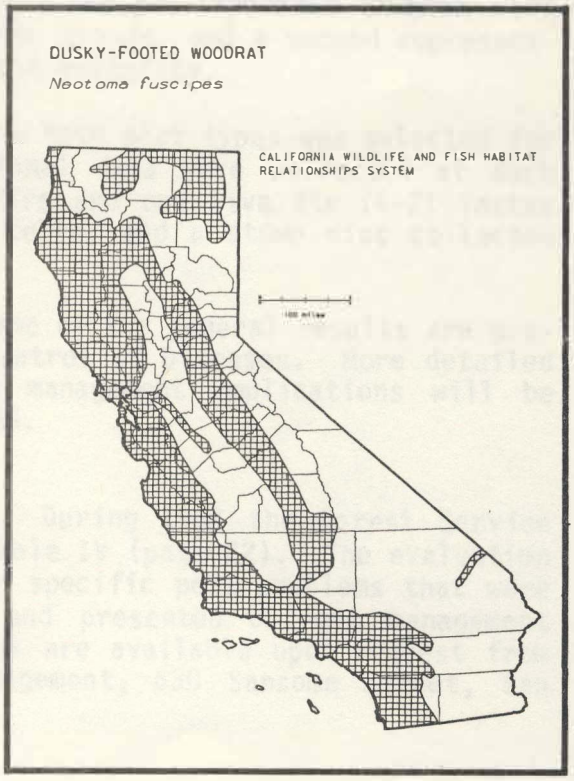
Nest Destruction. This has been suggested as a control approach during periods of inclement weather. However, in areas of dense brush cover or litter it is unlikely that adequate exposure will result. Data on the effeciveness of this approach are lacking.

Silvicultural Treatments. Precommercial thinning and sanitation of slash and brush to reduce favorable habitat conditions and to improve growing conditions have proven effective in reducing and preventing woodrat problems.

A combination of silvicultural treatments and the removal of offending individuals is the most effective approach for controlling and preventing wood rat damage.



DUSKY-FOOTED WOOD RATS (Neotoma fuscipes) can cause serious damage in dense, young conifer stands. They strip the bark from the upper boles and limbs of trees, leaving a smooth surface with few toothmarks (**upper left**). Wood rats are about the size of common house rats, but have hairy, unscaled tails and soft, fine fur (**upper right**); their feet and bellies are usually white or grayish. The large nests or stick houses are sure evidence of their presence (**lower left**); these are found on stumps or logs, in dense clumps of conifers, or in the crowns of trees. Wood rats are widespread in California forests (**lower right**).



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SURVEYS AND EVALUATIONS

PEST DAMAGE INVENTORY ON THE SAN BERNARDINO NATIONAL FOREST. The Forest Service initiated a survey of the San Bernardino National Forest, San Bernardino and Riverside Counties, to determine the amount of tree mortality occurring between May 1981 and May 1982. The purpose of the survey was to compare the causes and level of tree mortality during a period of deficient rainfall (mid-1980 to late 1981), with that which occurred earlier when conditions were more favorable for tree growth (1976-1978). Pest, site, and stand conditions associated with the mortality were recorded. A report of the survey findings will be available in 1983.

STATE-WIDE EVALUATION OF FOMES ANNOSUS IN TRUE FIR. A five-year evaluation of Fomes annosus in red and white fir was completed in 1982. Forest pathologists from the University of California, Berkeley, led the project, which was sponsored by the Forest Service, Forest Pest Management. Two of the objectives were to determine the incidence of the root disease fungus in true fir, and to measure the volume of living and dead trees affected.

Pathologists examined true fir stands on National Forests in northern and central California from Kern County northward; stands in southern California or on State and private lands were not included. Aerial photographs were taken of plots throughout the commercial forest type, and those plots containing 10 percent or more true fir within a square-kilometer area were interpreted for recent mortality. Two samples were selected: one representing all true fir stands, and a second representing stands with photo-detectable, recent mortality.

A further sample of 1/6th-acre cells in both plot types was selected for ground checking. Standard mensurational data were collected at each cell. In addition, recently-killed firs and one live fir (4-21 inches dbh) were felled in the appropriate cells, and a stump disc collected for incubation of fungi.

The data were analyzed in 1982, and some of the general results are presented on page 10 under **Status and Control of Diseases.** More detailed reports of the findings and of the management implications will be published by the Forest Service in 1983.

MISCELLANEOUS BIOLOGICAL EVALUATIONS. During 1982 the Forest Service conducted the evaluations listed in Table IV (page 22). The evaluation reports included brief descriptions of specific pest problems that were important to forest land managers, and presented current management alternatives (control options). Copies are available upon request from the Forest Service, Forest Pest Management, 630 Sansome Street, San Francisco, California 94111.

TABLE IV. BIOLOGICAL EVALUATIONS PERFORMED BY THE FOREST SERVICE - 1982

EVALUATION NUMBER	EVALUATION LOCATION	ACRES EVALUATED	HOST SPECIES	PEST OR PESTS INVOLVED
82-1	State-wide	6.3 MM	DF,PP, JP,PiP	Cw
82-2	Crab Flats Campground, Arrowhead R.D., San Bernardino N.F.	20	PP,CP	Fa,Ar,Mc,Ips
82-3	Coldbrook and Pineknot Campgrounds, Aspen Glen Picnic Area, Big Bear R.D., San Bernardino N.F.	45	JP,WF	Ar,Pb,Ed,Mc, Ips
82-4	San Bernardino N.F.	120 M	PP,JP WF,CP	Ar,Fa,Am,Pb, Ed,Ps,Sv,Dj, Db,Dm,Dv,Mc, Ips,Ta
82-5	San Jacinto R.D., San Bernardino N.F.	4000	JP,PP, CP	Ar,Fa,Mc,Ips, Dv
82-6	North Shore Campground, Arrowhead R.D., San Bernardino N.F.	20	BO,CP	Phr,Ar,Db
82-7	Stanislaus N.F.	750 M	PP,JP	Oz
82-8	Humboldt Nursery, Six Rivers N.F.	1	RF,WF	Pho,Fo
82-9	No. Shirttail Cr. Plantation, Foresthill R.D., Tahoe N.F.	30	SP	Cr
82-10	Badger Hill Breeding Arboretum, Eldorado N.F.	40	SP	Nc
82-11	Island Park Rec. Area, Pine Flat Lake, U. S. Army Corps of Engineers	5	BlO	Ab

TABLE IV (Cont.)

EVALUATION NUMBER	EVALUATION LOCATION	ACRES EVALUATED	HOST SPECIES	PEST OR PESTS INVOLVED
82-12	Cleveland N.F.	7800	JP,KxM, CP,WF	Dv,Ips,Mc,Fa, Ar
82-13	No. Shore Campground, Arrowhead R.D., San Bernardino N. F.	20	--	Ro,Pg
82-14	Flat Sale, Big Bear R.D., San Bernardino N.F.	97	JP	Gs
82-15	Gray Falls Campground, Lower Trinity R.D., Six Rivers N.F.	40	DF	Md,Ps,Fp
82-16	So. Fk. Trinity River, Lower Trinity R.D., Six Rivers N.F.	1000	DF,SP	Md,Ps,Fp,Cr
82-17	Sierra and Sequoia N.F.s	75,000	PP,JP	Oz
82-18	Dry Cr. Plantations, Hume Lake R.D., Sequoia N.F.	250	PP	Oz
82-19	Spring Hill Plantation, Mt. Shasta R.D., Shasta-Trinity N.F.	1000	PP	He,Ips,Dv
82-20	Sly Cr. Reservoir, LaPorte R.D., Plumas N.F.	20	PP,SP, KxM	Rm,Cr,We
82-21	Edson Cr., Willow Sprgs., and Lava Burn Plantation, McCloud R.D., Shasta-Trinity N.F.	1000	PP	Cw,Fa,Db,Dm, Mc,Zh
82-22	Espee Ridge Plantation, Covelo R.D., Mendocino N.F.	4	SP	Cr

TABLE IV (Cont.)

EVALUATION NUMBER	EVALUATION LOCATION	ACRES EVALUATED	HOST SPECIES	PEST OR PESTS INVOLVED
82-23	Fort Bidwell Indian Reservation	1600	WF,PP IC	Ar,Fa,Ca,Sv, Dm,Ips
82-24	Golden Gate National Recreation Area, Muir Woods National Monument	15	MC,CL, DF	Sc,Am,Llb,Cw
82-25	Forks and Spring Cove Campgrounds, Bass Lake R.D., Sierra N.F.	15	PP	Ar,Ips
82-26	Illinois Sale Area, La Porte R.D., Plumas N.F.	32	WF	Sv,Fa
82-27	Paradise Planta-tion, Groveland R.D., Stanislaus N.F.	200	PP,SP	Ar,Rz,Zh
82-28	South Fork Mtn., Hayfork R.D., Shasta-Trinity N.F.	950	RF,WF	Ar,Ca,Fa,Am, Pa,Sv
82-29	Covelo R.D., Mendocino N.F.	2000	SP	Cr
82-30	Potts Sale, Pacific R.D., Eldorado N.F.	400	WF,SP, PP	Fa,Ed,Cr,Lo
82-31	Little Grass Valley, La Porte R.D., Plumas N.F.	160	WF,RF, JP,LP SP	Fa,Ar,Cr,Ap, Et,Sv,Ips
82-32	Pony Peak Sale, Happy Camp R.D., Klamath N.F.	40	WF	Fa,Am,Ar,Sv, Ta
82-33	Clover Creek, Sequoia-Kings Canyon N. Parks	95	RF,WF, JP,SP	Wt,Fa,Ar,Ps
82-34	Mineral King, Sequoia-Kings Canyon N. Parks	20	JP	Dj,Ips,Dr

TABLE IV (Cont.)

EVALUATION NUMBER	EVALUATION LOCATION	ACRES EVALUATED	HOST SPECIES	PEST OR PESTS INVOLVED
82-35	Bear River Burn, Amador R.D Eldorado N.F.	500	JP	Ar
82-36	Tannery Gulch and Hayward Flat Campgrounds, Weaverville R.D., Shasta-Trinity N.F.	20	DF,PP, SP	Fa,Am,Cw,Ar, Cr,Fp
82-37	Bluff Cr. and Lightning Sale, Orleans R.D., Six Rivers N.F.	100	DF,SP, WF	Cw,Md,Wt,Am
82-38	Big Cr., Groveland R.D., Stanislaus N.F.	1	PP,IC	Fa
82-39	Yosemite Valley, Yosemite N. Park	500	PP,IC	Fa
82-40	Gray's Pk. Plantation Almanor R.D., Lassen N.F.	15	JP	Ce,Es
82-41	Ridge 2 Sale, Tule R.D., Sequoia N.F.	6	WF,SP, IC,BO	Fa,Dm,Am,Ar
82-42	Red Mtn. Burn, Claraville Flat, Greenhorn R.D., Sequoia N.F.	3250	IC,PP, BO,JP	Am,Fa
82-43	Brushy Plantation, Yolla Bolla R.D., Shasta-Trinity N.F.	80	DF	De,Dp
82-44	Sierra N.F.	6000	SP	Cr
82-45	Yosemite N.P.	15	LP	Cm
82-46	Jakes Gulch, Rider Gulch, Oak Knoll R.D., Klamath N.F.	110	PP	Zh,Rz

TABLE IV (Cont.)

EVALUATION NUMBER	EVALUATION LOCATION	ACRES EVALUATED	HOST SPECIES	PEST OR PESTS INVOLVED
82-47	Dome Sale, Cannell Mdw. R.D., Sequoia N.F.	340	JP	Fa,Ar,Mc, Ips, Gs
82-48	Deer Mtn. Plantation, Colt Sale, and Picadilly Ridge, Goosenest R.D., Klamath N.F.	350	PP,WF, SRF	Ce,Fa,Fc

HOST ABBREVIATIONS

BlO = Blue oak
BO = Black oak
CL = California laurel
CP = Coulter pine
DF = Douglas-fir
IC = Incense-cedar
JP = Jeffrey pine
KxM = Knobcone x Monterey pine
LP = Lodgepole pine
MC = Monterey cypress
Pip = Singleleaf pinyon pine
PP = Ponderosa pine
RF = Red fir
SP = Sugar pine
SRF = Shasta red fir
TO = Tanoak
WF = White fir

PEST ABBREVIATIONS

Aa = Alder flea beetle
Ab = Abiotic
Ac = Cooley spruce gall aphid
Am = Armillaria root disease
Ap = Atropellis canker
Ar = Dwarf mistletoe
Bc = Douglas-fir cone moth
Ca = Cytospora canker
Ce = Pine resin midge
Cf = Douglas-fir twig beetle
Cm = Lodgepole needle miner
Co = Cone gall midge

PEST ABBREVIATIONS

Cp = Pandora moth
Cr = White pine blister rust
Cw = Black stain root disease
Da = Fir coneworm
Db = Western pine beetle
De = Dermea canker
Dj = Jeffrey pine beetle
Dm = Mountain pine beetle
Dp = Douglas-fir beetle
Dr = Drought
Dv = Red turpentine beetle
Ea = Spruce aphid
Ed = Elytroderma disease
Es = Pine shoot borer
Et = Indian paint fungus
Fa = Annosus root disease
Fc = True fir canker
Fo = Fusarium root disease
Fp = White pocket rot
Gs = Ground squirrel
He = Herbicide
Ips = Pine engraver
Llb = Laurel leaf blight
Lo = Logging injury
Ma = Pinyon needle scale
Mc = California flatheaded borer
Md = Fir flatheaded borer
Ms = Douglas-fir seed chalcid
Nc = Black pineleaf scale
Nm = Pine butterfly
Oz = Ozone injury
Pa = Yellow cap fungus
Pe = Pesticide

TABLE IV (Cont.)

PEST ABBREVIATIONS

Pg = Pocket gopher
Pho = Phoma blight and canker
Phr = True (leafy) mistletoe
Ps = Velvet top fungus
Psp = Twig beetle
Ra = Rabbit
Ro = Rodents
Rz = Ponderosa pine tip moth
Sc = Cypress canker
Sq = Squirrel
Sv = Fir engraver
Ta = Fir roundheaded borer
We = Weather
Wt = Windthrow
Zh = Pine needle sheathminer

PEST DETECTION REPORT. The Conditions Report is compiled from data recorded on this form by Federal, State, and private forest managers and individuals. The accuracy of the information depends on the care with which foresters and others report damage caused by insects, diseases, weeds, animals, weather, chemicals, and air pollution. Copies are available at local offices of the Forest Service, or from the California Department of Forestry.

UNITED STATES DEPARTMENT OF AGRICULTURE - FOREST SERVICE — CALIFORNIA FOREST PEST CONTROL ACTION COUNCIL

FOREST PEST DETECTION REPORT

I. FIELD INFORMATION (See instructions on reverse)

1. COUNTY:
2. FOREST (FS ONLY):
3. DISTRICT (FS ONLY):
4. LEGAL DESCRIPTION: T. _____ R. _____ S. _____
5. DATE:
6. LOCATION:
7. LAND OWNERSHIP: 1. FOREST SERVICE ☐ 2. OTHER FEDERAL ☐ 3. STATE ☐ 4. PRIVATE ☐
8. SUSPECTED CAUSE(S) OF INJURY: 1. INSECT ☐ 2. DISEASE ☐ 3. ANIMAL ☐ 4. WEATHER ☐ 5. CHEMICAL ☐ 6. MECHANICAL ☐ 7. WEED ☐ 8. UNKNOWN ☐
9. SIZE(S) OF TREE(S) AFFECTED: 1. SEEDLING ☐ 2. SAPLING ☐ 3. POLE ☐ 4. SAWTIMBER ☐ 5. OVERMATURE ☐
10. PART(S) OF TREE(S) AFFECTED: 1. ROOT ☐ 2. BRANCH ☐ 3. LEADER ☐ 4. BOLE ☐ 5. TWIG ☐ 6. FOLIAGE ☐ 7. BUD ☐ 8. CONE ☐
11. SPECIES AFFECTED:
12. NUMBER AFFECTED:
13. ACRES AFFECTED:
14. INJURY DISTRIBUTION: 1. SCATTERED ☐ 2. GROUPED ☐
15. STATUS OF INJURY: 1. DECREASING ☐ 2. STATIC ☐ 3. INCREASING ☐
16. PLANTATION ? 1. YES ☐ 2. NO ☐
17. STAND COMPOSITION (SPECIES):
18. STAND AGE AND SIZE CLASS:
19. STAND DENSITY (BASAL AREA):
20. SITE QUALITY:
21. PEST NAMES (IF KNOWN), AND REMARKS (SYMPTOMS AND CONTRIBUTING FACTORS):
22. SAMPLE FORWARDED ? 1. YES ☐ 2. NO ☐
23. ACTION REQUESTED: 1. YOUR INFORMATION ONLY ☐ 2. LAB IDENTIFICATION ☐ 3. FIELD EVALUATION ☐
24. REPORTER'S NAME:
25. REPORTER'S AGENCY:
26. REPORTER'S ADDRESS, ZIP CODE, & PHONE NO.:

II. REPLY (Pest Management Use)

27. RESPONSE:
31. FILE NO.
28. REPORT NUMBER:
29. DATE:
30. EXAMINER'S SIGNATURE:

R5-3400-1 (Rev. 2/82)

SUMMARY OF RESOLUTIONS ADOPTED BY THE COUNCIL, OCTOBER 20, 1982

RESOLUTION NO. 1 -- WILDLIFE RESEARCH FUNDING. To the U. S. Departments of Interior and Agriculture, California Senators and Congressmen, the Western States Legislative Forestry Task Force, and the Reforestation Council of the Western Forestry and Conservation Association, recommending adequate support for the Fish and Wildlife Service's Olympia and Bend Research Stations and the Animal Damage Control Research Project.

RESOLUTION NO. 2 -- IPM PROGRAM IN THE SOUTHERN CALIFORNIA FORESTS. To the Regional Forester, Forest Service, Pacific Southwest Region, the Director, California Department of Forestry, the Chairman, California Board of Forestry, and the Supervisors of San Bernardino County, urging the coordination of all agencies in developing an integrated pest management program for the Southern California Mountain Forest Region.

RESOLUTION NO. 3 -- GYPSY MOTH RESEARCH. To the Chairman, California Board of Forestry, requesting that the Board organize a coordinated research effort to investigate the potential impact of the Gypsy Moth on urban and wildland resources in California, to study the relevant biology that will improve our detection, surveillance, and suppression technology, and to develop environmentally acceptable suppression tactics.

RESOLUTION NO. 4 -- GYPSY MOTH DETECTION. To the Chairman, California Board of Forestry, the Director, California Department of Food and Agriculture, and State Senator Barry Keene, requesting support for a Gypsy Moth Detection Program in the forest environment.

RESOLUTION NO. 5 -- GYPSY MOTH QUARANTINE. To the U. S. Department of Agriculture, urging that they provide immediate full-funding and point-of-origin inspection authority for an effective Federal Gypsy Moth Quarantine, or failing that, that they rescind the present quarantine so that the State of California can legally implement an effective quarantine.

RESOLUTION NO. 6 -- HERBICIDE ADVISORY COMMITTEE. To the Chairman, California Board of Forestry, requesting Council participation as a member of the Legislation and Policy Development Subcommittee Herbicide Advisory Committee.

RESOLUTION NO. 7 -- FOREST CHEMICAL APPLICATION CONCERNS. To the Director, California Department of Food and Agriculture, and the Chairman, California Board of Forestry, concerning the Section 208 review of Herbicide Best Management Practice, and recommending that the Board channel its forest chemical application concerns through the existing registration and permit program administered by the Department.

COUNCIL AND COMMITTEE OFFICERS, 1982-1983

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Council Secretary: Michael Haverty (Forest Service, Berkeley)

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The Executive Committee is composed of the Council Officers (3) and the Standing Committee Officers (12), as well as 3 Members-at-Large:

Dick Parmeter (University of California, Berkeley)

Tom Warner (National Park Service, Three Rivers)

David Wood (University of California, Berkeley)